

WHAT IS CLAIMED IS:

- 1 1. A method comprising the steps of:
2 receiving an incoming call from a calling party over a switched telephone
3 network, wherein the incoming call includes caller ID information;
4 connecting the incoming call to a voice mailbox; and
5 storing the caller ID information in association with the voice mailbox.
- 1 2. The method as recited in claim 1, wherein the voice mailbox is associated
2 with a called party, and wherein the caller ID information is stored in association
3 with a voice message left by the calling party for the called party in the voice
4 mailbox.
- 1 3. The method as recited in claim 2, wherein the caller ID information
2 includes a telephone number of the calling party.
- 1 4. The method as recited in claim 3, wherein the caller ID information further
2 includes an identity of the calling party.

1 5. The method as recited in claim 3, wherein the connecting step further
2 includes the steps of:
3 receiving and decoding digits dialed by the calling party, wherein the digits
4 are an extension number of the called party; and
5 connecting the incoming call to the voice mailbox when the called party
6 does not answer the incoming call.

1 6. The method as recited in claim 3, wherein the method further comprises the
2 steps of:
3 automatically dialing the telephone number at a request of the called party
4 while the called party is listening to the voice message.

1 7. The method as recited in claim 6, wherein the dialing step further
2 comprises the steps of:
3 retrieving the telephone number in response to a signal activated by the
4 called party while the called party is listening to the voice message;
5 seizing an outside line coupled to the switched telephone network; and
6 automatically dialing the telephone number over the outside line.

1 8. The method as recited in claim 7, further comprising the steps of:
2 comparing the retrieved telephone number to a table of local telephone
3 numbers; and

4 adding a "1" to the telephone number if the retrieved telephone number
5 does not match an entry in the table.

1 9. The method as recited in claim 6, wherein the steps are performed in a
2 telephone call/voice processing system.

1 10. The method as recited in claim 1, further comprising the step of:
2 transferring the caller ID information to a calling list accessible by a user.

1 11. The method as recited in claim 10, further comprising the steps of:
2 retrieving the caller ID information from the calling list at a request of the
3 user; and
4 automatically dialing the calling party.

1 12. The method as recited in claim 10, wherein the transferring step further
2 comprises the steps of:
3 indexing the caller ID information in the calling list in response to a signal
4 activated by the user while the user is listening to a voice message left by the
5 calling party in the voice mailbox.

1 13. The method as recited in claim 12, wherein the caller ID information
2 includes a telephone number of the calling party and data identifying the calling

g data.

~~data.
od as recite
the telepho
ser selectin
ally dialing~~

Figure 6. The effect of the number of iterations (n) on the accuracy of the proposed algorithm. The figure shows two plots side-by-side. The left plot shows the error rate (Y-axis, ranging from 0.0 to 0.8) versus the number of iterations (n , X-axis, ranging from 0 to 10). The right plot shows the error rate (Y-axis, ranging from 0.0 to 0.8) versus the number of iterations (n , X-axis, ranging from 0 to 10).

1 15. A telephone call/voice processing system comprising:
2 circuitry for coupling the system to a switched telephone network;
3 circuitry for receiving an incoming call from a calling party over the
4 switched telephone network, wherein the incoming call includes caller ID
5 information pertaining to the calling party;
6 circuitry for connecting the incoming call to a voice mailbox; and
7 circuitry for storing the caller ID information in association with the voice
8 mailbox.

1 16. The system as recited in claim 15, wherein the voice mailbox is associated
2 with a telephone extension of a called party, and wherein the caller ID information
3 is stored in association with a voice message left by the calling party for the called
4 party in the voice mailbox associated with the telephone extension.

1 17. The system as recited in claim 16, wherein the caller ID information
2 includes a telephone number of the calling party.

1 18. The system as recited in claim 17, wherein the caller ID information further
2 includes an identity of the calling party.

1 19. The system as recited in claim 17, wherein the connecting circuitry further
2 includes:

3 circuitry for receiving and decoding digits dialed by the calling party,
4 wherein the digits pertain to the telephone extension of the called party; and
5 circuitry for connecting the incoming call to the voice mailbox when the
6 called party does not answer the incoming call.

1 20. The system as recited in claim 17, wherein the system further comprises:
2 circuitry for automatically dialing the telephone number at a request of the
3 called party while the called party is listening to the voice message.

1 21. The system as recited in claim 20, wherein the dialing circuitry further
2 comprises:

3 circuitry for retrieving the telephone number in response to a signal
4 activated by the called party while the called party is listening to the voice
5 message;

6 circuitry for seizing an outside line coupled to the switched telephone
7 network; and

8 circuitry for automatically dialing the telephone number over the outside
9 line.

1 22. The system as recited in claim 21, further comprising:
2 circuitry for comparing the retrieved telephone number to a table of local
3 telephone numbers; and
4 circuitry for adding a "1" to the telephone number if the retrieved telephone
5 number does not match an entry in the table.

1 23. The system as recited in claim 15, further comprising:
2 circuitry for storing a voice message left by the calling party in the voice
3 mailbox in association with the caller ID information;
4 circuitry for automatically calling back the calling party at a request of a
5 user while the user is listening to the voice message, wherein the automatic call
6 back uses the caller ID information to dial the calling party.

1 24. The system as recited in claim 15, further comprising:
2 circuitry for transferring the caller ID information to a calling list accessible
3 by a user.

1 25. The system as recited in claim 24, further comprising:
2 circuitry for retrieving the caller ID information from the calling list at a
3 request of the user; and
4 circuitry for automatically dialing the calling party.

1 26. The system as recited in claim 24, wherein the transferring circuitry further
2 comprises:

3 circuitry for indexing the caller ID information in the calling list in
4 response to a signal activated by the user while the user is listening to a voice
5 message left by the calling party in the voice mailbox.

1 27. The system as recited in claim 26, wherein the caller ID information
2 includes a telephone number of the calling party and data identifying the calling
3 party, and wherein the telephone number is indexed in the calling list as a function
4 of the identifying data.

1 28. The system as recited in claim 27, further comprising:
2 circuitry for retrieving the telephone number of the calling party from the
3 calling list in response to the user selecting the calling party from the calling list;
4 and
5 circuitry for automatically dialing the calling party.

1 29. In a telephone call/voice processing system, a method comprising the steps
2 of:
3 receiving an incoming call that includes caller ID information; and
4 transferring the caller ID information to a calling list accessible by a user at
5 an extension of the system.

1 30. The method as recited in claim 29, further comprising the steps of:
2 retrieving the caller ID information from the calling list at a request of the
3 user; and
4 automatically dialing the calling party.

1 31. The method as recited in claim 29, wherein the transferring step further
2 comprises the steps of:
3 indexing the caller ID information in the calling list in response to a signal
4 activated by the user while the user is communicating with the incoming call.

1 32. The method as recited in claim 31, wherein the caller ID information
2 includes a telephone number of a calling party initiating the incoming call and data
3 identifying the calling party, and wherein the telephone number is indexed in the
4 calling list as a function of the identifying data.

Year	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100
1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	

1 34. A telephone call/voice processing system comprising:
2 circuitry for receiving an incoming call that includes caller ID information;
3 and
4 circuitry for transferring the caller ID information to a calling list accessible
5 by a user at an extension of the system.

1 35. The system as recited in claim 34, further comprising:
2 circuitry for retrieving the caller ID information from the calling list at a
3 request of the user; and
4 circuitry for automatically dialing the calling party.

1 36. The system as recited in claim 34, wherein the transferring circuitry further
2 comprises:
3 circuitry for indexing the caller ID information in the calling list in
4 response to a signal activated by the user while the user is listening to a voice
5 message left by the calling party in the voice mailbox.

1 37. The system as recited in claim 36, wherein the caller ID information
2 includes a telephone number of the calling party and data identifying the calling
3 party, and wherein the telephone number is indexed in the calling list as a function
4 of the identifying data.

- 39 -

DP: Double patenting

40. A telephone call/voice processing system comprising:

* circuitry adaptable for coupling the system to an analog telephone extension, wherein the analog telephone extension includes a display operable for displaying alphanumeric information, and wherein the analog telephone extension includes a first caller ID modem; *→ the one on the telephone*

* circuitry for creating and storing a message associated with the analog telephone extension; *→ the one on the switch*

* a second caller ID modem coupled to the circuitry adaptable for coupling the system to the analog telephone extension;

circuitry for retrieving the message from the storing circuitry to the second caller ID modem;

circuitry for sending the message from the second caller ID modem to the first caller ID modem; and

circuitry for displaying the message on the display,

wherein the message does not include typical caller ID information.

41. The system as recited in claim 40, wherein retrieval and sending of the message to the first caller ID modem is performed in response to receipt of an incoming call to the system intended for the analog telephone extension.

42. The system as recited in claim 41, wherein the message is sent to the first caller ID modem while the analog telephone extension is being rung by the system.

1 ^{DP²} → 43. The system as recited in claim 40, wherein typical caller ID information
2 includes a phone number and an identity of a calling party.

Sub
Al
1 ^{DP¹²} → 44. The system as recited in claim 42, further comprising:
2 circuitry for coupling the system to a public switched telephone network;
3 and
4 circuitry for receiving the incoming call from the public switched telephone
5 network.

1 45. The system as recited in claim 42, further comprising:
2 switching circuitry adaptable for receiving the incoming call, wherein the
3 switching circuitry is adaptable for connecting the incoming call to the analog
4 telephone extension; and
5 voice processing circuitry adaptable for automatically interacting with the
6 incoming call, wherein the switching circuitry and the voice processing circuitry
7 are controlled by a single processing means in the system.

1 46. The system as recited in claim 45, wherein the voice processing circuitry
2 further comprises a signal processing circuitry coupled to the single processing
3 means.

1 47. The system as recited in claim 46, wherein the switching circuitry further
2 comprises a digital cross-point matrix coupled to the single processing means and
3 to the signal processing circuitry.

1 48. The system as recited in claim 45, wherein the single processing means is
2 controlled by a single set of software operable for controlling both the switching
3 circuitry and the voice processing circuitry.

000000-000000

1 49. In a telephone call/voice processing system, a method comprising the steps
2 of:
3 creating and storing a message associated with an analog telephone
4 extension coupled to the system, wherein the analog telephone extension includes a
5 display operable for displaying alphanumeric information, and wherein the analog
6 telephone extension includes a first caller ID modem;
7 retrieving the message to a second caller ID modem in said system; and
8 sending the message from the second caller ID modem to the first caller ID
9 modem,
10 wherein the message does not include typical caller ID information.

1 50. The method as recited in claim 49, further comprising the step of:
2 displaying the message on the display.

1 51. The method as recited in claim 50, wherein the retrieving and sending steps
2 are performed in response to receipt of an incoming call to the system intended for
3 the analog telephone extension.

1 52. The method as recited in claim 51, wherein the sending step includes the
2 step of ringing the analog telephone extension in response to the receipt of the
3 incoming call.

includes a phone number and an identity of a calling party.

1 54. The method as recited in claim 52, wherein the incoming call is received
2 from a public switched telephone network coupled to the system.

1 54. The method as recited in claim 52, wherein the incoming call is received
2 from a public switched telephone network coupled to the system.

1 55. A method comprising the steps of:
2 formulating a non-typical caller ID message; and
3 transmitting between first and second caller ID modems the non-typical
4 caller ID message.

1 56. The method as recited in claim 55, wherein a typical caller ID message
2 includes one or both of a phone number and an identity of a calling party.

1 57. The method as recited in claim 55, wherein the transmitting step further
2 comprises the steps of:
3 retrieving the non-typical caller ID message by the first caller ID modem;
4 in the first caller ID modem, converting the message into tones;
5 transmitting the tones to the second caller ID modem; and
6 in the second caller ID modem, converting the tones back into the message.

1 58. The method as recited in claim 57, further comprising the steps of:
2 delivering the message from the second caller ID modem to a display
3 circuit in a telephone unit; and
4 displaying the message.

1 59. The method as recited in claim 58, wherein the transmitting step is
2 performed in response to receipt of an incoming call intended for the telephone

*Sub 3
at 4*

unit, and wherein the transmitting step is performed in conjunction with connecting the incoming call to the telephone unit.

*add
c3*

000000-000000